

A Process Asset Framework for CMMI

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Topics

- **Background Information**
 - CMMI OPF and OPD Process Areas
 - CMMI Generic Practices 2.1 & 3.1
- **GDAIS Engineering Process Architecture/Hierarchy**
 - Process Architecture
 - Examples
- **Engineering Process Asset Library (PAL)**
 - Lotus Notes PAL Implementation
 - Features
- **Summary & Conclusions**
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 - Questions

Background Information

CMMI-SE/SW/IPPD Process Areas

Maturity Level 2

- **CM** - Configuration Management
- **MA** - Measurement and Analysis
- **PPQA** - Process and Product Quality Assurance
- **PP** - Project Planning
- **PMC** - Project Monitoring and Control
- **SAM** - Supplier Agreement Management
- **REQM** - Requirements Management

Maturity Level 3

- **OPF** - Organizational Process Focus
- **OPD** - Organizational Process Definition
- **OT** - Organizational Training
- **OIE** - Organizational Environment for Integration
- **DAR** - Decision Analysis and Resolution
- **RSKM** - Risk Management
- **IPM** - Integrated Project Management
- **IT** - Integrated Teaming
- **RD** - Requirements Development
- **TS** - Technical Solution
- **PI** - Product Integration
- **Ver** - Verification
- **Val** - Validation

Maturity Level 4

- **QPM** - Quantitative Project Management
- **OPP** - Organizational Process Performance

Maturity Level 5

- **CAR** - Causal Analysis and Resolution
- **OID** - Organizational Innovation and Deployment

OPF - Organizational Process Focus

- The purpose of Organizational Process Focus is to establish and maintain an understanding of the organization's processes and process assets, and to identify, plan, and implement the organization's process improvement activities.
- **SG 1 Strengths, weaknesses, and improvement opportunities for the organization's processes are identified periodically and as needed.**
 - SP 1.1 Establish and maintain the description of the process needs and objectives for the organization.
 - SP 1.2 Assess the processes of the organization periodically and as needed to maintain an understanding of their strengths and weaknesses.
 - SP 1.3 Identify improvements to the organization's processes and related process assets.
- **SG 2 Improvements are planned and implemented, process assets are deployed, and process-related experiences are incorporated into the organization's process assets.**
 - SP 2.1 Establish and maintain process action plans to address improvements to the organization's processes and related process assets.
 - SP 2.2 Implement process action plans across the organization.
 - SP 2.3 Deploy the process and related process assets across the organization.
 - SP 2.4 Incorporate process-related work products, measures, and improvement information derived from planning and performing the process into the organization's process assets.

OPD - Organizational Process Definition

- The purpose of Organizational Process Definition is to establish and maintain a usable set of organizational process assets.

- **SG 1 A set of organizational process assets is available.**
 - SP 1.1 Establish and maintain the organization's set of standard processes.
 - SP 1.2 Establish and maintain descriptions of the life-cycle process models approved for use in the organization.
 - SP 1.3 Establish and maintain the tailoring criteria and guidelines for the organization's set of standard processes.

- **SG 2 Process assets that support the use of the organization's set of standard processes are available.**
 - SP 2.1 Establish and maintain an organizational measurement repository
 - SP 2.2 Establish and maintain the organization's library of process-related assets.

CMMI Level 2 & 3 Generic Practices

Commitment to Perform (CO)

GP 2.1 **Establish an Organizational Policy**

GP 3.1 **Establish a Defined Process**

Ability to Perform (AB)

GP 2.2 **Plan the Process**

GP 2.3 **Provide Resources**

GP 2.4 **Assign Responsibility**

GP 2.5 **Train People**

Directing Implementation (DI)

GP 2.6 **Manage Configurations**

GP 2.7 **Identify and Involve Relevant Stakeholders**

GP 2.8 **Monitor and Control the Process**

GP 3.2 **Collect Process Information**

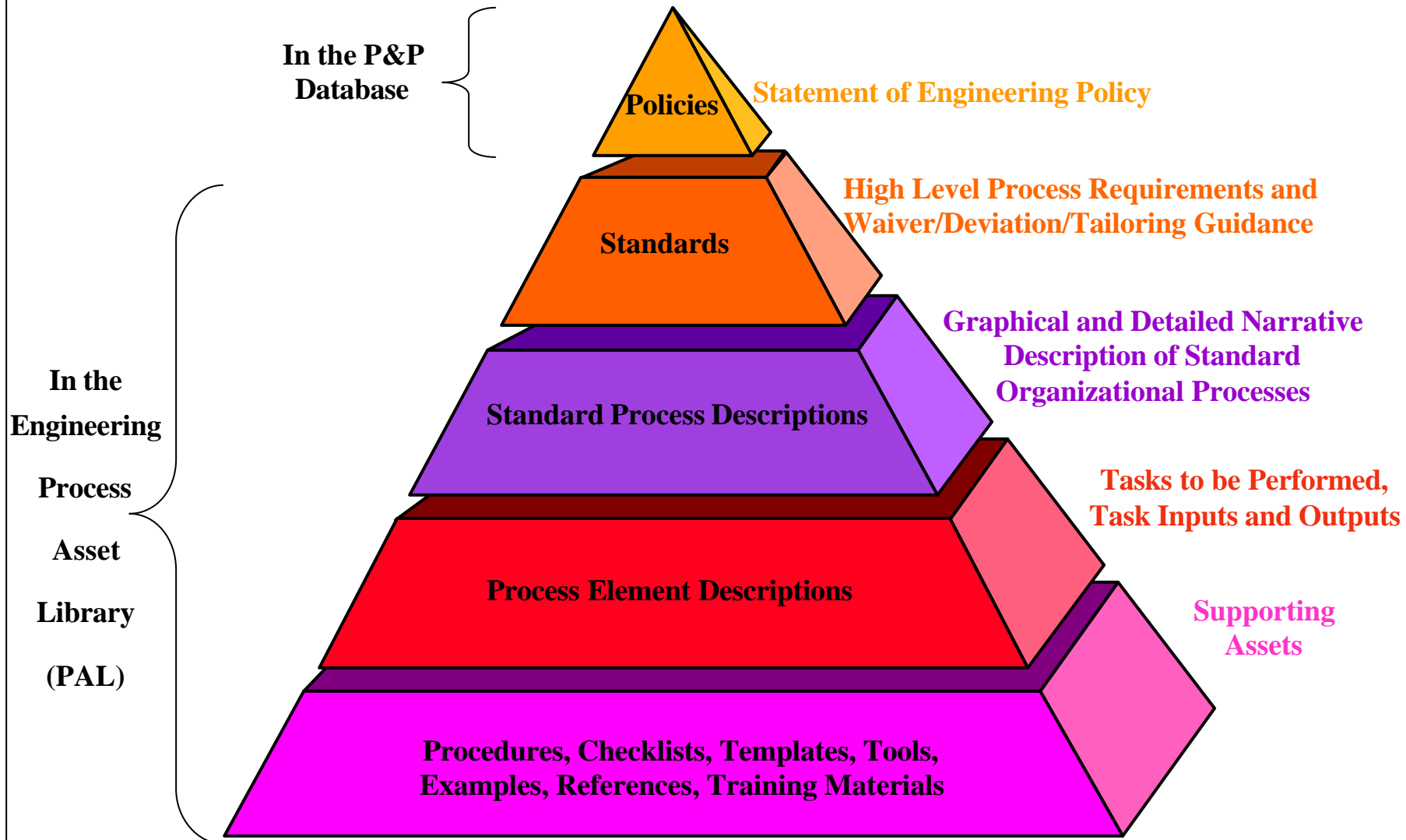
Verifying Implementation (VE)

GP 2.9 **Objectively Evaluate Adherence**

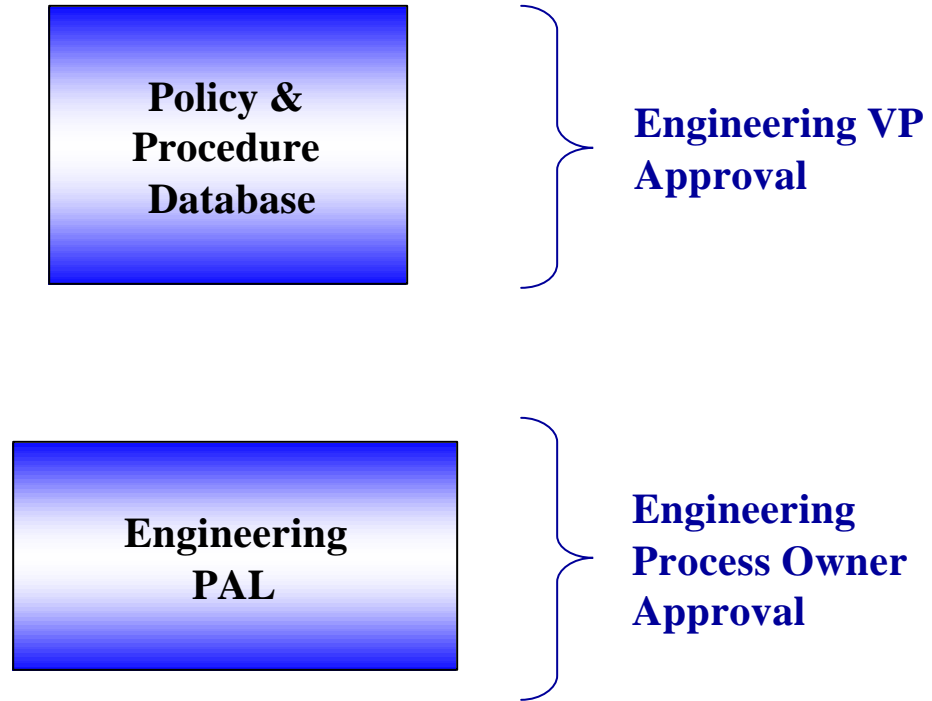
GP 2.10 **Review Status with Higher-Level Management**

GDAIS Engineering Process Architecture/Hierarchy

Engineering Process Architecture



P&P and PAL Approvals



Engineering Process Hierarchy

- **ENG 10:01:00 Engineering Policy**

} **P&P
Database**

- **ENG STD-001 Engineering Standard**

- **ENG SPD-001 Standard Process Description (IDEF0/ISSEP)**

- **ENG PED-xxx-yyy Process Element Description (ETVX)**

- **ENG CKLST-yyy** Checklist
 - **ENG EXMPL-yyy** Example
 - **ENG PCDR-yyy** Procedure
 - **ENG REF-yyy** Reference
 - **ENG TMPLT-yyy** Template
 - **ENG TOOL-yyy** Tool
 - **ENG TRNG-yyy** Organizational Training

} **PAL**

P&P Hierarchy Descriptions

● Requirements Assets

- Policy - [ENG](#)
 - Concise statement of policy
 - Invoke STD
- Standard - [STD](#)
 - High-level process requirements
 - Invoke SPD
 - Allowable deviations
 - Allowable tailoring
 - Proposal requirements
 - Project requirements
- Standard Process Description - [SPD](#)
 - Graphical depiction of organizational standard process
 - Narrative text and data dictionaries
- Process Element Description - [PED](#)
 - Inputs, tasks to be performed, and outputs for each SPD “element”

● Supporting Assets

- Checklist - [CKLST](#)
 - List of criteria to be satisfied
- Example - [EXMPL](#)
 - Represent a “best practice” completed asset (e.g., TMPLT, CKLST)
 - Serve as a basis for future projects
- Procedure - [PCDR](#)
 - Detailed description of inputs, steps, outputs
- Reference - [REF](#)
 - Useful summary or guidance material
- Template - [TMPLT](#)
 - An annotated description of a document
- Tool - [TOOL](#)
 - An asset that assists or does something to help the user
- Organizational Training - [TRNG](#)
 - Training material (internal)

Engineering Process Asset Library (PAL)

Engineering Process Asset Library (PAL)

Lotus Notes DB

- Lotus Notes DB



- Process Repository

- Organizational Standard Assets
- Common PAL for all Engineering Disciplines
 - Systems, Project, Software, and Hardware Engineering

- Used to Create the Project's Tailored Processes

PAL Features

Engineering Process Asset Library - Current Assets\By Hierarchy - Lotus Notes

File Edit View Create Actions Help

Workspace Engineering Process Asset Library - Current Assets\By Hierarchy

Views of Assets

Process Hierarchy

- General Information
- All Assets & Versions
- All By Responsibility
- Current Assets By
 - Hierarchy
 - Function & Type
 - Type & Function
 - Function & Node
 - Node
 - Node PEDs
 - Expiring
- Non Current Assets
 - Drafts
 - Pending Approval
 - Retired
 - Deleted

Engineering Process Asset Library

1 Expand Category 2 Collapse Category 3 Create Asset 4 Print View 5 Search

Asset ID	Title	Rev	Node	Initial Issue	Point of Contact
Policy					
ENG 10:00:00	✓ Engineering Policy	A		04/2001	David D Walden
ENG 10:00:01	✓ Internal Research and Development (IRAD) Submission and Review Policy	-		02/2001	Andrew J Wardrop
ENG 10:00:02	✓ Engineering Proposal Approval Policy	A		07/2001	Ronald E Frick
ENG 10:01:00	✓ Hardware Engineering Policy	-		01/2001	Patrick J Kelly Jr
ENG 10:02:00	✓ Software Engineering Policy	-		12/2000	Linda Schultz
ENG 10:03:00	✓ Systems Engineering Policy	-		01/2001	David D Walden
ENG 10:04:00	✓ Project Engineering Policy	-		01/2001	Jonathan P Giorgi
Standard					
HW STD-001	✓ Hardware Engineering Standard	-	A22	02/2001	Daniel W Lowry
PE STD-001	✓ Project Engineering Standard	A	A22	03/2001	Noel Neil
PE STD-002	✓ Configuration Management Standard	-	A22	02/2001	Noel R Neil
PE STD-003	✓ Data Management Standard	-	A22	02/2001	Noel R Neil
SW STD-001	✓ Software Engineering Standard	K	A22	02/2001	Linda Schultz
SYS STD-001	✓ Systems Engineering Standard	A	A22	03/2001	David D Walden
SYS STD-002	✓ Logistics Engineering Standard	-	A22	02/2001	David D Walden
Standard Process Description					
HW SPD-001	✓ Hardware Engineering Standard Process Description	C	A22	05/2001	Daniel W Lowry
PE SPD-001	✓ Project Engineering Standard Process Description (SPD)	A	A22	03/2001	Noel R Neil
SW SPD-001	✓ Software Process Description	AE	A22	02/2001	Linda Schultz
SW SPD-002	✓ Software Process Glossary	C	A22	12/2000	Linda Schultz
SYS SPD-001	✓ Systems Engineering Standard Process Description (SPD)	A	A22	03/2001	David D Walden
+ Process Element Description					
+ Organizational Training					
+ Procedure					
+ Template					
+ Checklist					
+ Tool					
+ Example					
+ Reference					

Background Agents

Multiple Views

Custom Toolbar

Sort Capabilities

Drafts/Archives

PAL Asset Details

ENG PED-A4213 Analyze System Risk - Lotus Notes

File Edit View Create Actions Text Help

Workspace Engineering Process Asset Library - Current Assets\By Hierarchy ENG PED-A4213 Analyze System Risk notes

1 Save Asset 2 Print Copy 3 Delete/Undelete This Assessment

Complete all fields below. Click on the info button [i] in the righthand column to see instructions.

Asset Title:	Analyze System Risk	[i]
Asset ID No:	ENG PED-A4213	[i]
Revision:	A	[i]
Current Revision:	<input type="radio"/> No <input checked="" type="radio"/> Yes	[i]
Functional Area:	<input checked="" type="radio"/> ENG <input type="radio"/> SE <input type="radio"/> PE <input type="radio"/> HW <input type="radio"/> SW	[i]
Model Node No:	A4213	[i]
Category:	Process Element Description	[i]
ENG Subcategory	General	[i]
Initial Issue Date:	04/04/2001	[i]
Asset Status :	<input type="radio"/> Draft <input checked="" type="radio"/> Active <input type="radio"/> Retired Approved	[i]

Complete all fields below. Click on the info button in the righthand column to see instructions.
Names must be in Notes mail format.

Owner:	David D Walden	[i]
Delegate:	Linda Schultz	[i]
Technical POC:	Delbert L Swanson	[i]
Last Editor:	Sandra J Ozahowski	[i]
Last Edit Date:	04/23/2001	[i]
Review Date	(Manually set desired review date if other than normal 2 years from approval)	[i]

Process Asset:

Complete all fields below. Click on the info button in the righthand column to see instructions.

Master Document(s)/File(s)/Link(s)/URL(s):	[i]
ENG PED-A4213_A.doc	
Support Material:	[i]
Comments:	[i]

If any information is displayed below, it is for reference only. To see the master document, including headers, footers, and properly formatted tables and graphics (if any), we

[None] Network

Summary & Conclusions

Lessons Learned

- **Defined architecture/hierarchy supports the CMMI OPF, OPD, and GP requirements**
- **Types of assets cover the range of asset types and labels convey asset meaning**
- **Central PAL provides clear location of organizational standard process assets**
- **Lotus Notes implementation of PAL provides for multiple access and automates routine maintenance activities such as expiration notification**

What are YOUR Questions and Comments?

